

WHAT IS CLAIMED IS:

1. A riser system for use in a deep draft floating platform, the riser system comprising:

a buoyancy apparatus having an upper portion and a lower portion guided within the

floating platform, the buoyancy apparatus having an upper surface;

a well deck provided on the upper surface of the buoyancy apparatus;

at least two vertical risers supported by the buoyancy apparatus and attached to the well deck and extending down through the buoyancy apparatus for connection to a seabed wellhead; and

at least one tendon assembly securing the buoyancy apparatus to the seabed;

wherein the tendon assembly comprises at least two concentric tubular tendon elements; and

wherein the tendon assembly is attached to the well deck and extends along the vertical centerline of the buoyancy apparatus.

2. The riser system of Claim 1, wherein the tension loads are absorbed principally by the tendon assembly.

3. The riser system of Claim 1, wherein the platform includes a drilling deck supported by the buoyancy apparatus.

4. The riser system of Claim 1, wherein the risers are coupled to the tendon assembly.

5. The riser system of Claim 1, wherein the risers and the tendon assembly are uncoupled.

6. The riser system of Claim 1, wherein the platform includes a surface tree on the well deck.

7. The riser system of Claim 6, wherein the platform includes a manifold on a production deck, and a jumper fluidly connecting the surface tree to the manifold.

8. The riser system of Claim 1, wherein the buoyancy apparatus includes a moon pool.

9. The riser system of Claim 1, wherein the buoyancy apparatus comprises a single elongate tubular buoy.

5 10. The riser system of Claim 1, wherein the buoyancy apparatus comprises a plurality of interconnected elongate tubular buoys.

11. The riser system of Claim 1, wherein each of the tubular tendon elements comprises a plurality of sections connected with casing joints.

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12. The riser system of Claim 1, wherein the tendon assembly comprises a riser specifically designed to function as a tendon.

13. A deep draft floating platform for drilling and/or production of petroleum from the seabed, comprising:

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a production deck including petroleum handling apparatus;

a buoyancy apparatus guided within the platform and having an upper surface;

a well deck provided on the top surface of the buoyancy apparatus;

at least two surface trees on the well deck;

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at least two vertical risers extending from the seabed to the surface trees;

a manifold on the well deck and fluidly coupled to the surface trees through a pressure reduction choke; and

a low pressure jumper fluidly coupling the manifold to the petroleum handling apparatus on the production deck.

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14. The platform of Claim 13, further comprising a drilling deck supported by the buoyancy apparatus.

15. The platform of Claim 13, wherein the buoyancy apparatus includes a moon pool.

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16. The platform of Claim 13, wherein the buoyancy apparatus is guided within the platform at

an upper part of the buoyancy apparatus and at a lower part of the buoyancy apparatus.

17. The platform of Claim 13, wherein the jumper is a low pressure flexible pipe.

5 18. The platform of Claim 13, wherein the jumper is an articulated rigid arm.

19. The platform of Claim 13, wherein the buoyancy apparatus comprises a single elongate tubular buoy.

10 20. The platform of Claim 13, wherein the buoyancy apparatus comprises a plurality of interconnected elongate tubular buoys.

21. The platform of Claim 13, wherein the buoyancy apparatus is vertically restrained by the risers.

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22. The platform of Claim 13, wherein the buoyancy apparatus is vertically restrained by a central tendon assembly passing axially through the buoyancy apparatus and connected to the well deck and to the seabed.

20 23. The platform of Claim 22, wherein the risers are coupled to the tendon assembly.

24. The riser system of Claim 22, wherein the risers and the tendon assembly are uncoupled.